

## 6. Optional Step: Trying Other Hyperparameters

The retraining script has several other command line options you can use.

You can read about these options in the help for the retrain script:

```
python -m scripts.retrain -h
```

Try adjusting some of these options to see if you can increase the final validation accuracy.

For example, the `--learning_rate` parameter controls the magnitude of the updates to the final layer during training. So far we have left it out, so the program has used the default `learning_rate` value of 0.01. If you specify a small `learning_rate`, like 0.005, the training will take longer, but the overall precision might increase. Higher values of `learning_rate`, like 1.0, could train faster, but typically reduces precision, or even makes training unstable.

You need to experiment carefully to see what works for your case.

It is very helpful for this type of work if you give each experiment a unique name, so they show up as separate entries in TensorBoard.

It's the `--summaries_dir` option that controls the name in tensorboard. Earlier we used:

```
--summaries_dir=training_summaries/basic
```

TensorBoard is monitoring the contents of the `training_summaries` directory, so setting `--summaries_dir` to `training_summaries` or any subdirectory of `training_summaries` will work.

You may want to set the following two options together, so your results are clearly labeled:

```
--learning_rate=0.5  
--summaries_dir=training_summaries/LR_0.5
```

